

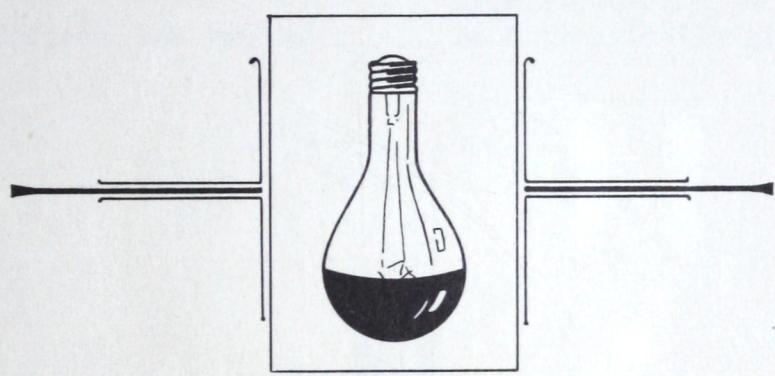
621.32

# ILLUMINATION

*I  
by*

SILVRAY





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## SILVRAY PROCESSED LAMPS

While the idea of applying silver to incandescent lamps for light control dates back many years, it was not until comparatively recently that the Silvray Process was developed to its present state of perfection. The process is guaranteed unconditionally against all defects and will always outlast the lamp to which it is applied regardless of its operating temperature.

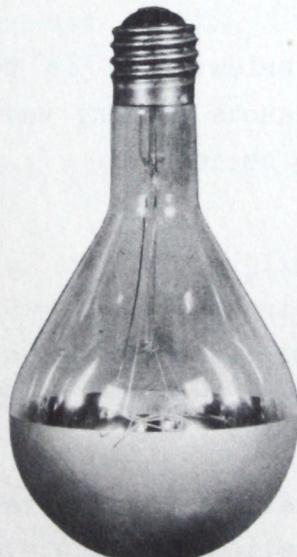
The Silvray Process has marked a

radically different method in the design and application of indirect lighting in that no auxiliary reflectors are necessary and the inherent high efficiency of the Silvray Processed Lamp makes possible indirect illumination on a wattage basis no higher than is required for direct or semi-indirect lighting and with unusually excellent results as to distribution, intensity and maintained high efficiency, with cleaning maintenance practically eliminated.

### STANDARD SILVRAY PROCESSES

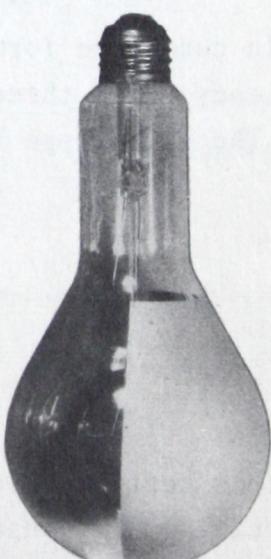


The Spraylite Process. Used in Indirect Floor Lamps. For candelabra fixtures of ornamental indirect design. For foundries where exposed reflecting surfaces are practically useless, and for window lighting in existing reflectors.



THE INDIRECT (bowl-silvered)  
PROCESS.

For full indirect illumination. Also for use with Silvray Industrial Reflectors.



The Covelite Process. Eliminates auxiliary reflectors for cove, window, and stage lighting. Also advantageous in shallow fixtures employing horizontal burning lamps and for local lighting where space is limited, as over lathes, etc.

## ACCEPTED ADVANTAGES OF INDIRECT ILLUMINATION

The basic advantages of indirect illumination are too well known and generally accepted to bear repetition among the technically informed. It has been experienced that while great strides have been made in the field of indirect lighting, the general public is just beginning to become aware of the importance of eyesight conservation. It is naturally difficult to interpret in dollar value the intangible advantages of glareless and shadowless illumination evenly distributed. However, many large industrial and commercial organizations have proved conclusively through actual experiences and careful records that the production of workers whether in factory or office, can be increased as much as

50% under proper illumination as contrasted with poor lighting conditions. It has been undeniably proved that inadequate and improper illumination impairs both eyesight and general efficiency of workers.

Portions of results of a series of tests to determine the relative effects of various types of illumination on the human eye, conducted by Drs. Ferree and Rand of Wilmer Institute, Johns Hopkins University, are reproduced here. They clearly indicate the value of indirect illumination to organizations where either mental accuracy or careful co-ordination of physical and mental efforts are necessary for successful production.

In condensed form the table below shows in percentages the relative human eye efficiency after three hours continuous reading under the different types of lighting. The normal eye is assumed to be 100%.

Daylight	92%
Indirect	88%
Semi-indirect	28%
Direct	18%

This test emphasizes very clearly the definite need for eye conservation in both commercial and industrial organizations. With eyesight functioning under full indirect lighting with so little loss of initial efficiency as compared to ordinary types of lighting, it is obvious that aside from the humanitarian benefits derived therefrom, full indirect lighting insures the employer a far greater number of efficient working hours than any other type of illumination.

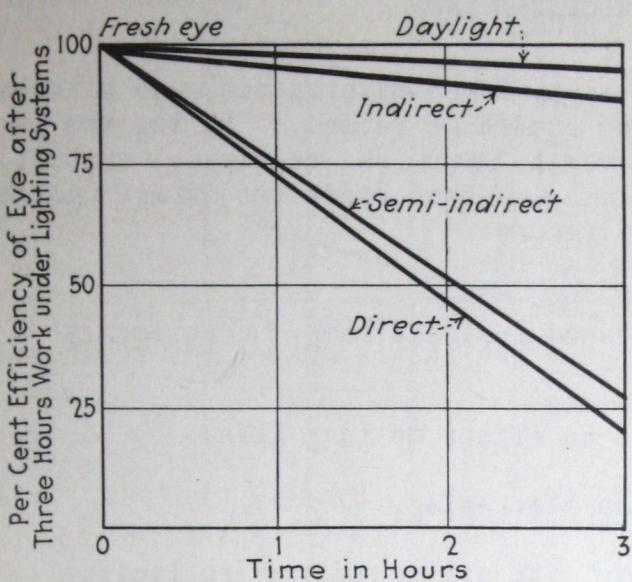


Chart No. 1--A graphic picture of the results of a test of the effect on the eye of three systems of artificial light as contrasted with daylight. After three hours, the worker in an indirect light, such as Silvray, was more than 50% more efficient than he was while working under either of the other two systems of illumination.

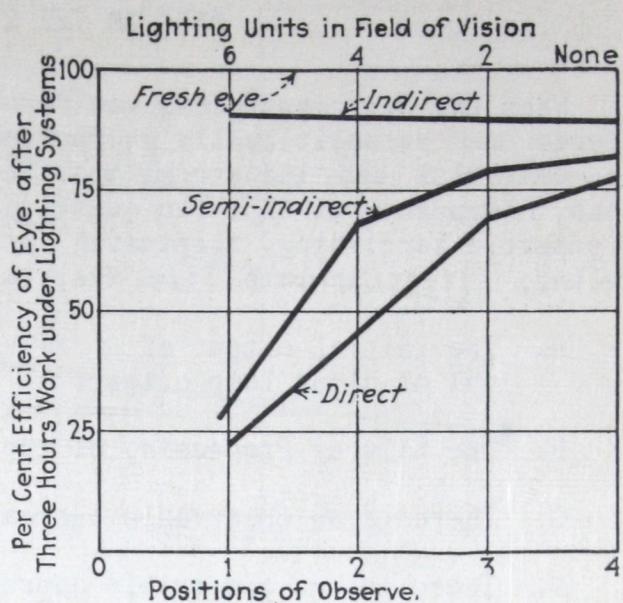


Chart No. 2--The above chart shows conclusively that regardless of the number of units in the field of vision, eye efficiency under indirect lighting of the Silvray type is practically constant.

## THE SCOPE OF SILVRAY

Silvray accessories and fixtures have been developed for use in conjunction with various designs of the Silvray Process to provide indirect lighting and other forms of lighting for practically

all general lighting needs and for many special applications. Five general classifications cover broadly the process and Silvray equipment, namely:

### 1. Commercial Applications

Indirect illumination for offices, schools, drafting rooms, banks, stores, show rooms, etc.

### 2. Industrial Applications

The Industrial Unit provides an indirect illumination effect for industrial plants, gymnasiums, etc., and any other areas where unsuitable ceilings, or the absence of ceilings preclude the use of indirect illumination.

### 3. Cove Lighting

Lighting from concealed sources, such as coves, pedestals, wall urns, wall niches, etc. for banks, public buildings, building corridors, etc.

### 4. Home Lighting

Indirect Units, floor standards, and special applications.

### 5. Special Applications

For stage, show windows, floodlighting, spot lighting, locomotive headlighting, stereoptican, also for tennis, hand ball, and squash courts.

\* \* \*

## DATA ON THE SILVRAY PROCESSED LAMP

When the Silvray Process was first offered and unconditionally guaranteed for commercial and industrial applications, it was natural that the questions of possible tarnishing, blistering, and peeling, effect on lamp life, initial

output, lumen maintenance, and blackening should be raised. During the past several years as required, authentic tests have been conducted and are a matter of record.

- A. The initial output of a Silvray Processed Indirect Lamp is uniformly 97% of clear lamp output.
  - B. The Silvray Processing of the lamp has no effect on lamp life.
  - C. There is no observable increase in lamp blackening.
  - D. There is no observable depreciation of the silver mirror reflecting surface throughout lamp life.
  - E. Lumen maintenance of the processed lamp is high, bearing in mind that it is a self-contained lighting unit that should not be compared to a clear lamp, but to the combination of a clear lamp and an auxiliary reflector.
- \* \* \*

The average lumen output for 1000 hours for the clear lamp, processed lamp, and clear lamp with auxiliary reflector are shown below. (Fig.I)

These values represent operating conditions under which all equipment and lamps were constantly kept clean. If no cleaning occurred, under average conditions the additional depreciation of the Silvray Lamp would be very slight-- (5 to 8%).

### LUMEN MAINTENANCE

Initial	Mean Lumens in Percentage of Average Initial
A.	89%
B.	82%
B.*	85%
C.	69%

\* Values given in terms of initial output of processed lamp.

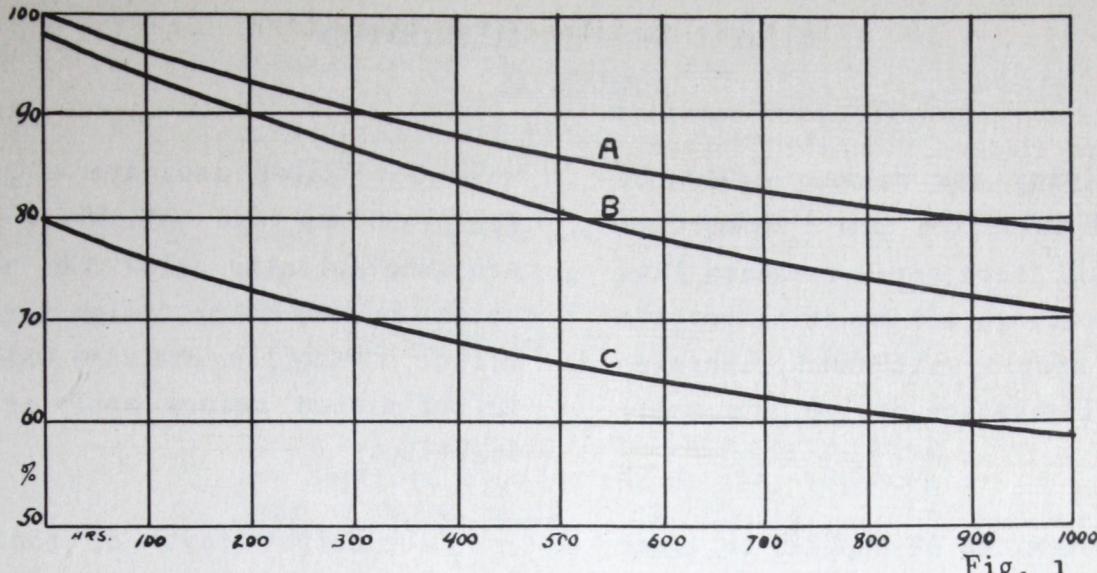


Fig. 1

**SHOWN BELOW ARE PHOTOMETRIC DATA  
COVERING A SILVRAY INDIRECT PROCESSED LAMP**

ELECTRICAL TESTING LABORATORIES

NEW YORK, N. Y.

REPORT No. 49825

ORDER No. 47978-S

PLATE No. 24828

CANDLEPOWER DISTRIBUTION  
SILVRAY PROCESSED LAMP\*

Rendered to Silvray Lighting, Incorporated

No. Submitted - One

Lamp - 200 Watts; 120 Volts; 3380 Lumens;  
PS30 Clear Gas-Filled Bulb; C-9 Filament; Medium Base; General Service.

Holder

Procedure

Dimensions of Luminaire

- a 6 in.
- b 1-3/4
- c
- d
- e
- f
- g
- h



Weight of glass

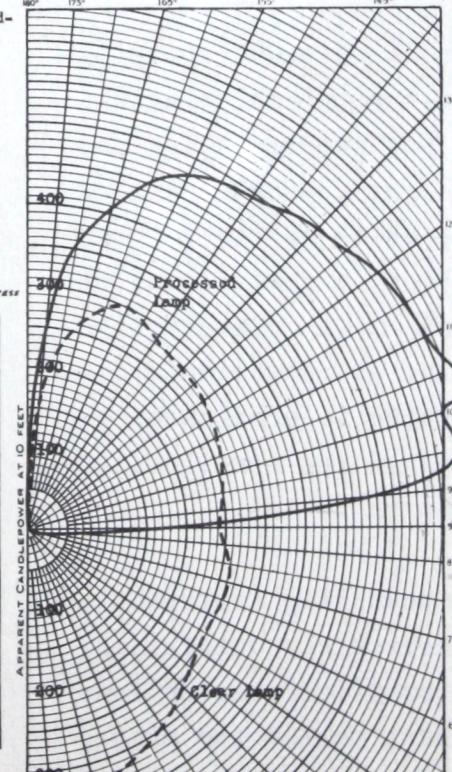
LUMINAIRE DISTRIBUTION DATA					
Mean Vertical					
MID-ZONE ANGLES	APPARENT CANDLEPOWER AT 10 FEET	ZONAL LUMENS	MID-ZONE ANGLES	APPARENT CANDLEPOWER AT 10 FEET	ZONAL LUMENS
180 ZER.	0	90 MBR.	205		
175	234	19	85	70	102
165	408	115	75	31.2	33
155	482	220	65	1.7	2
145	497	312	55	0	
135	518	401	45		
125	544	485	35		
115	556	548	25		
105	540	590	15		
95	418	448	5		
		0 MBR.			

ZONE	LUMENS LAMP	LUMINAIRE	PERCENT TOTAL LUMENS BARE LAMP	PERCENT LIGHT OUTPUT
0 - 60	911	-	-	
0 - 90	1717	137	4	97
90 - 180	1663	3138	93	
0 - 180	3380	3275	97	

LUMINAIRE BRIGHTNESS								
MILLILAMBERTS AND CANDLEPOWER PER SQUARE INCH								
Locations	A	B	C	D	E	F	G	H
ML.								
Cp. per Sq. In.								



NOTE: THE ARROWS INDICATE THE LOCATION AND ANGLE OF VIEW. E.T.L. Identification No. 10  
TESTED BY J.H. PLOTTED BY J.M. COMPUTED BY S.M. CHECKED BY C.G. ISSUED May 6th, 1931.

APPROVED BY William F. Lind  
ENGINEER IN CHARGE OF PHOTOMETRY

C. G. Horn  
IN CHARGE OF TEST

## SILVRAY INDIRECT ILLUMINATION COMMERCIAL

In applying the Silvray system of indirect illumination for commercial purposes, all recognized standard layouts as to spacings and mounting heights which are in keeping with sound principles for good illumination design are suitable.

The system can be applied on these layouts with excellent results, assuming average ceiling heights of from 9½ to 12 feet and reasonably good ceiling and side wall conditions. Due to the unusually broad distribution of light from the processed lamp it is not necessary to use long suspensions in order to obtain uniform illumination.

In general practice when applying the Silvray System, complex calculations are unnecessary. For average space and normal ceiling heights, where ceiling and side walls are white or light ivory and in good condition, a coefficient of utilization of 50% is a conservative figure for arriving at approximate intensities. This value is predicated on reflecting surfaces having a reflection coefficient of from 70 to 80%.

With suitable measuring instruments now available for accurately determining actual reflection coefficients, or from available color chart tables the proper utilization factor can quickly be arrived at for applications where ceiling and

wall conditions indicate a reflection factor of less than 70%. Where conditions are substantially below the 70% value, unless in some color design for artistic effect, the ceiling and side walls should be refinished before applying indirect lighting.

The output (97%) of the indirect processed lamp is but slightly modified through the addition of the Silvray Luminaire. The overall output of the typical Silvray Unit is 91% for opaque bowls, and 93% for fixtures utilizing the translucent bowls such as the Bilate Unit. Some Silvray Units have outputs as high as 95%.

Photometric data on two popular units, one opaque and one translucent bowl type, are reproduced on the following pages.

It is desirable in some cases to frost the upper portion of indirect lamps to eliminate striations and suspension shadows. In such cases, the improvement in ceiling and side wall appearance is well worth the small sacrifice in intensity due to frosting.

While the unusually high efficiency of the Silvray Indirect Lighting Unit constitutes the primary sales feature, this system has other distinctive features almost equally as important.

1. Little dust under ordinary conditions can accumulate on the neck of the lamp due to its sharp angle. There is, therefore, a considerable reduction in cleaning maintenance expense.
2. Whenever a burned out lamp is replaced by a new processed lamp the Silvray Unit becomes in effect a new lighting unit with its original output of from 91 to 93% restored.
3. Since there are no auxiliary parts which are depended upon for reflection, replacement of these parts is eliminated.

Cleaning maintenance records in large offices and stores where careful records have been kept indicate cleaning maintenance charges of from 50¢ to \$1.00 per unit per year.

This cost, plus replacement charges in other systems more than offset the cost of the Silvray Process. Its many other advantages make it economically sound.

SHOWN BELOW ARE PHOTOMETRIC DATA  
COVERING A TYPICAL SILVRAY OPAQUE BOWL INDIRECT UNIT

**ELECTRICAL TESTING LABORATORIES**  
NEW YORK, N. Y.

REPORT No. 130805

ORDER No. 50753-S

PLATE No. 25716

**CANDLEPOWER DISTRIBUTION  
OLD COLONIAL INDIRECT UNIT NO.211\***

Rendered to Silvray Lighting, Incorporated

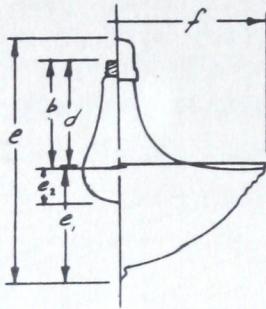
No. Submitted - Four, Light Output 93-93-93-93

Lamp - 200 Watts; 115 Volts; 3303 Lumens;  
PS30 Silvray Processed Gas-Filled Bulb;  
C-9 Filament; Medium Base; General Service.  
Lumens before processing 3385.

Procedure

Dimensions of Luminaire

a \_\_\_\_\_  
b 6 in.  
c \_\_\_\_\_  
d 5-7/16  
e 15; e<sub>1</sub> 7; e<sub>2</sub> 1-7/8  
f 16-1/4  
h \_\_\_\_\_



Weight of glass \_\_\_\_\_

LUMINAIRE DISTRIBUTION DATA					
Mean Vertical					
MID-ZONE ANGLES	APPARENT CANDLEPOWER AT 10 FEET	ZONAL LUMENS	MID-ZONE ANGLES	APPARENT CANDLEPOWER AT 10 FEET	ZONAL LUMENS
180° ZEN.	30.5		90° NOR.	45.0	
175°	44.0	7	85°	21.7	22
165°	325	89	75°	0	
155°	452	206	65°		
145°	462	290	55°		
135°	473	366	45°		
125°	497	446	35°		
115°	545	539	25°		
105°	570	603	15°		
95°	581	504	5°		
		0° NADIR.			

LIGHT FLUX VALUES					
ZONE	SILVRAY LUMENS	LUMINAIRE	TOTAL LUMENS	PERCENT SILVRAY	PERCENT LIGHT OUTPUT IN TERMS OF CLEAR LAMP
0° - 60°	-	0	0	-	-
0° - 90°	96	22	96	0.5	91
90° - 180°	3207	3050	3207	92.5	91
0° - 180°	3303	3072	3303	93	91

LUMINAIRE BRIGHTNESS

MILLILAMBERTS AND CANDLEPOWER PER SQUARE INCH

Locations A B C D E F G H

ML.

Cp. per Sq. In.

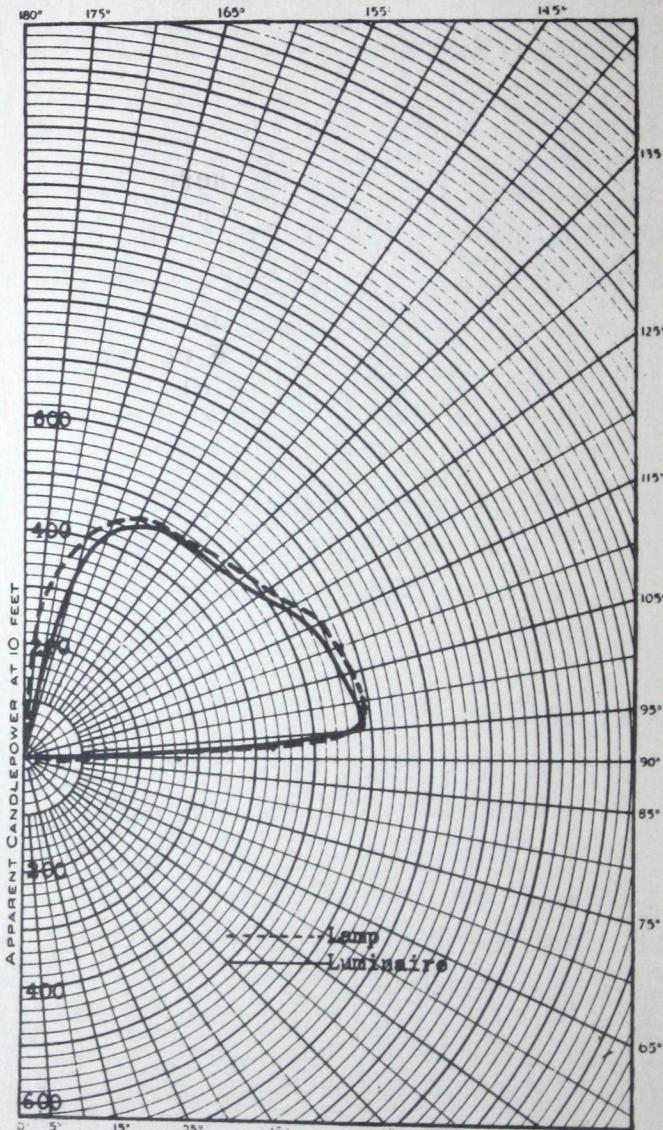
NOTE: THE ARROWS INDICATE THE LOCATION AND ANGLE OF VIEW \*E.T.L. Identification No.4315.

TESTED BY acc PLOTTED BY f.m.t COMPUTED BY b.m.t CHECKED BY m.w. ISSUED March 21st, 1932.

APPROVED BY

*William F. Haile*  
ENGINEER IN CHARGE OF PHOTOMETRY

*C. G. Horn*  
IN CHARGE OF TEST



SHOWN BELOW ARE PHOTOMETRIC DATA  
COVERING A TYPICAL SILVRAY INDIRECT LUMINAIRE WITH OPALESCENT BOWL

**ELECTRICAL TESTING LABORATORIES**

NEW YORK, N. Y.

REPORT No. 130806

ORDER No. 50753-S

PLATE No. 25717

**CANDLEPOWER DISTRIBUTION**

BILITE UNIT NO. 201\*

Rendered to Silvray Lighting, Incorporated

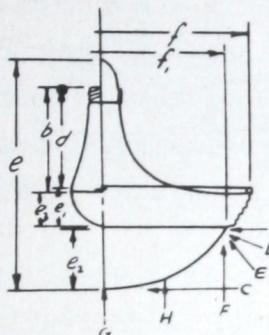
No. Submitted - Four, Light Output 94.5-95-95-95

Lamp - 200 Watts; 115 Volts; 3303 Lumens;  
PS30 Silvray Processed Gas-Filled Bulb;  
C-9 Filament: Medium Base; General Service.  
Lumens before processing 3385.

**Procedure**

**Dimensions of Luminaire**

a 6 in.  
b \_\_\_\_\_  
c \_\_\_\_\_  
d 5-7/16      e<sub>3</sub> 1-3/8  
e 13-3/4; e<sub>1</sub> 2; e<sub>2</sub> 3-3/4;  
f 16; f<sub>1</sub> 14  
h \_\_\_\_\_



Weight of glass 2 lb. 3 oz.

LUMINAIRE DISTRIBUTION DATA					
Mean Vertical					
MID-ZONE ANGLES	APPARENT CANDLEPOWER AT 10 FEET	ZONAL LUMENS	MID-ZONE ANGLES	APPARENT CANDLEPOWER AT 10 FEET	ZONAL LUMENS
180 ZEN.	18.6	90 HOR.	44.2		
175	38.6	6	20.9	23	
165	319	90	4.3	5	
155	456	206	4.3	4	
145	468	294	2.9	3	
135	480	372	3.3	3	
125	504	456	4.1	3	
115	556	552	4.5	2	
105	526	618	4.9	1	
95	583	503	5.4	1	
		0 NADIR.	5.4		

LIGHT FLUX VALUES					
ZONE	SILVRAY LUMENS	PERCENT TOTAL LUMENS	SILVRAY	PERCENT LIGHT OUTPUT	IN TERMS OF CLEAR LAMP
0 - 60	-	13	0.5		
0 - 90	96	45	1.5		
90 - 180	3207	3097	93.5	93	
0 - 180	3303	3142	95		

**LUMINAIRE BRIGHTNESS**

MILLILAMBERTS AND CANDLEPOWER PER SQUARE INCH

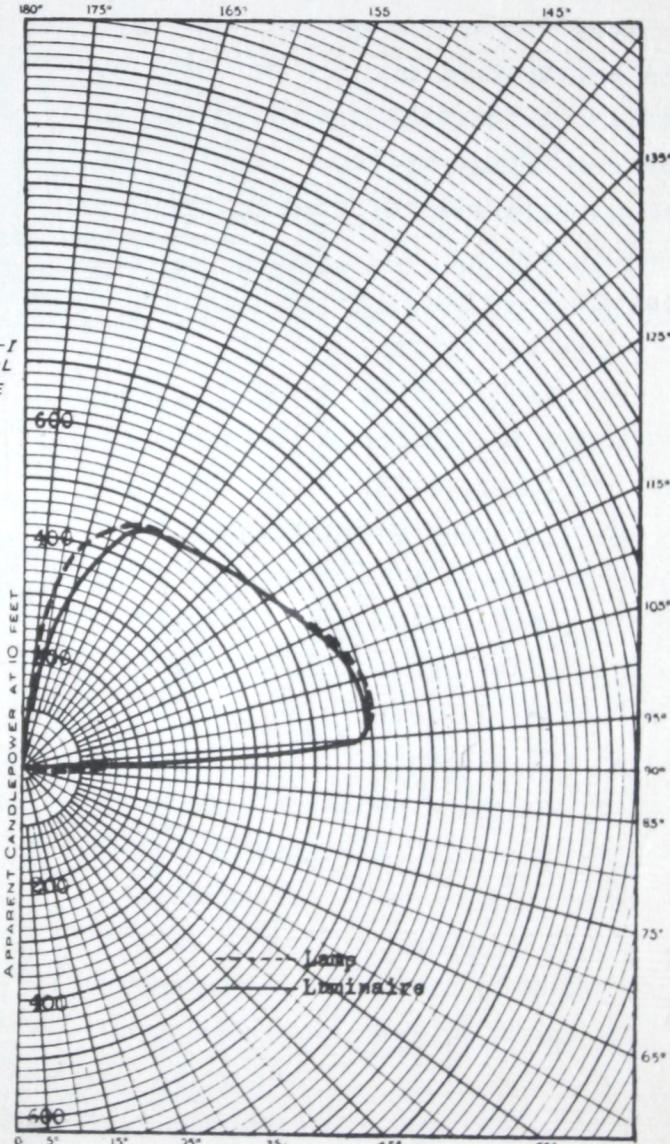
Locations	A	B	C	D	E	F	G	H	I	L
ML.		20		31		26	17	20	25	26
Cp. per Sq. In.		0.04		0.06	0.05	0.05	0.03	0.04	0.05	0.05

NOTE: THE ARROWS INDICATE THE LOCATION AND ANGLE OF VIEW \*E.T.L. Identification No. 4312.

TESTED BY REC PLOTTED BY MJ COMPUTED BY JH CHECKED BY MW ISSUED March 21st, 1932.

APPROVED BY William F. Hause  
ENGINEER IN CHARGE OF PHOTOMETRY

C. E. Horn  
IN CHARGE OF TEST



## LUMINAIRES BY SILVRAY

Silvray Luminaires described herein have but little bearing on the light emitted from the processed lamp.

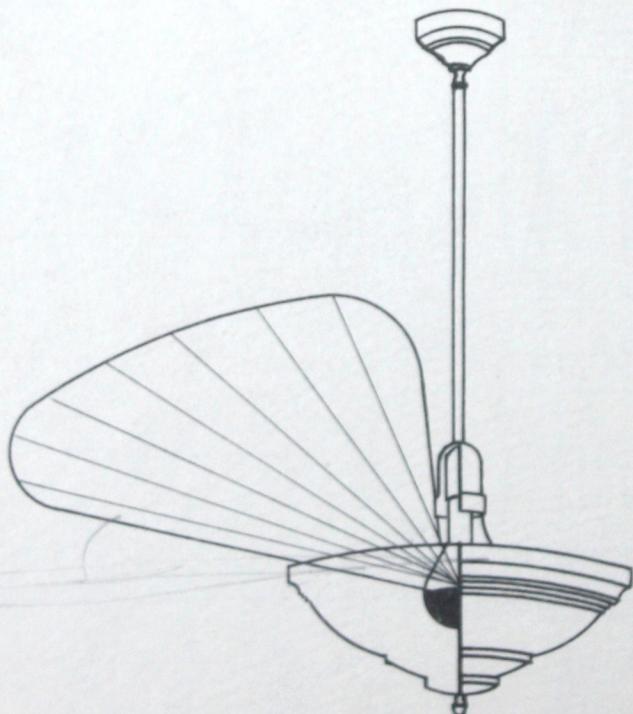
All Silvray Indirect Luminaires are made of heavy gauge metals either cadmium plated or durably enameled for permanence. Finishes will not tarnish or peel.

Canopies with knockouts for individual switch control are optional and all indirect fixtures are wired in accordance with underwriters' requirements unless specifically ordered unwired.

Since the process controls the distribution of light from the lamp, it is

necessary that fixtures be properly designed with respect to bowl diameters, suspensions, depth, etc., to prevent modification of, or interference with the distribution of the processed lamp.

The aim of Silvray is to promote the more general use of adequacy and quality in illumination. Silvray desires to cooperate with manufacturers of ornamental and special lighting equipment in the design of their fixtures to employ the Silvray Processed Lamp. By means of this cooperation, architectural and ornamental designs may in general be extended to include the lighting fixtures.



## SILVRAY INDUSTRIAL ILLUMINATION

The Silvray Industrial Unit as it looks when installed. The small diagrams below demonstrate the delivery of light rays to the reflecting surface where they are diffused and reflected to the working plane. The process silver skin applied to the lamp itself prevents direct rays from reaching the eye and provides a well distributed and diffused light of proper intensity.

By means of reflectors of porcelain enamel steel, large in area, and with white matte reflecting surface, Silvray created in effect a modified form of indirect illumination for industrial plants and for all other applications where indirect illumination is desirable or necessary, but where suitable ceiling and side wall conditions make indirect lighting otherwise impracticable. While the light source is not so large as in the case of totally indirect illumination where the entire ceiling is utilized for reflection, nevertheless, the resulting illumination is free from objectionable shadows. This is due to the fact that the Silvray Industrial Unit is generously proportioned

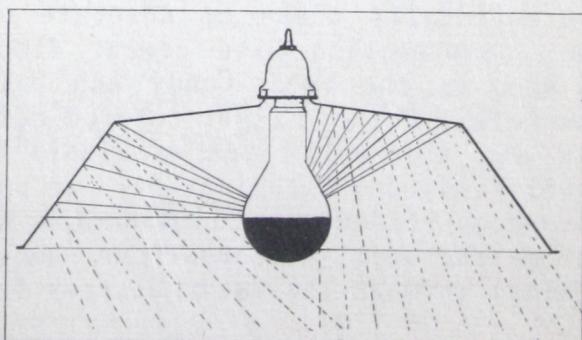
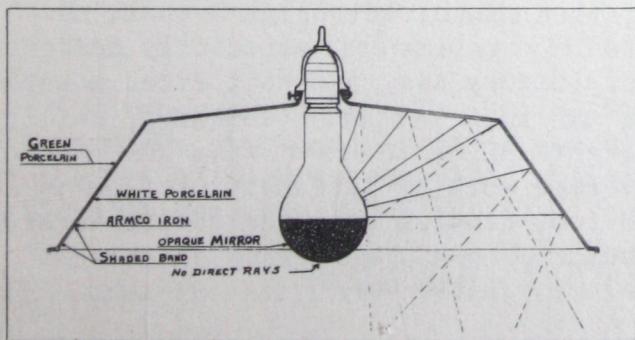
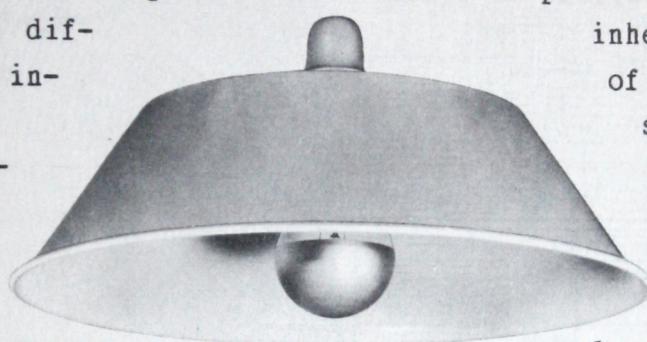
and all the light emitted from the lamp is reflected from the white matte interior reflecting surface of the unit. The eye is completely shielded from filament glare.

Due to the complete shielding of the eye from glare, the use of unusually large lamps -- 750, 1000, and 1500 Watt sizes is practicable. Because of the

inherently higher efficiency of large lamps, it is possible to effect wattage economies in initial layouts. Another important feature leading to higher illumination per watt in the

large Silvray Units is that diffusing glassware with consequent absorption is unnecessary. High intensities, heretofore impracticable because of the necessity for using large quantities of small units, are now obtainable by means of the #12 or #12A Industrial Unit.

The use of large Silvray Units for industrial purposes naturally results in lower installation cost due to the lesser number of required outlets, branch wiring, switching, etc., and of course the saving due to the smaller amount of lighting units necessary. Likewise, cleaning maintenance and lamp renewal costs are less.



SHOWN BELOW ARE PHOTOMETRIC DATA INDICATING THE CANDLE POWER DISTRIBUTION FROM THE SILVRAY INDIRECT PROCESSED LAMP WHEN USED IN ITS SPECIFIED REFLECTOR.

ELECTRICAL TESTING LABORATORIES  
NEW YORK, N. Y.

REPORT No. 49990

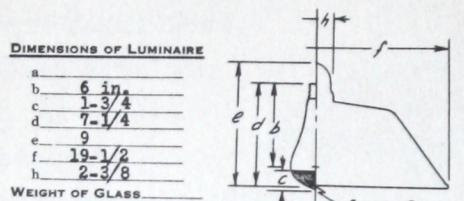
ORDER NO. 48725-S

PLATE NO. 25030

CANDLEPOWER DISTRIBUTION  
NO.11 INDUSTRIAL REFLECTOR\*

Rendered to Silvray Lighting, Inc.

Lamp - 200 Watts; 120 Volts; 3275 Lumens;  
PS30 Silvray Processed Gas-Filled Bulb;  
C-9 Filament; Medium Base; General Service.  
(Lumens before processing - 3380.)  
Reflector - White porcelain enameled inside  
mat surface.



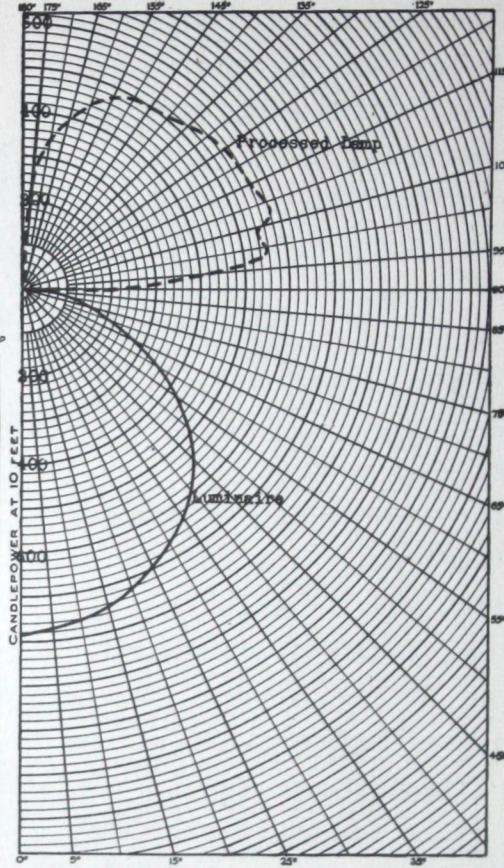
LUMINAIRE DISTRIBUTION DATA				
Mean Vertical				
MID-ZONE ANGLES	APPARENT CANDLEPOWER AT 10 FEET	ZONAL LUMENS	MID-ZONE ANGLES	APPARENT CANDLEPOWER AT 10 FEET
180° ZEN.		90° HZR.	0	
175°		85°	9.3	19
165°		75°	148	148
155°		65°	270	274
145°		55°	420	374
135°		45°	545	418
125°		35°	635	399
115°		25°	700	324
105°		15°	745	211
95°		5°	770	73
		0° NADIR	770	

LIGHT FLUX VALUES			
ZONE	LUMENS PROCESSED LAMP	LUMENS LUMINAIRE	% PER CENT TOTAL LUMENS LAMP
0°-60°	-	1799	55
0°-90°	137	2240	68.5
90°-180°	3138	-	-
0°-180°	3275	2240	68.5

LUMINAIRE BRIGHTNESS							
MILLILAMBERTS AND CANDLEPOWER PER SQUARE INCH THE ARROWS INDICATE THE LOCATION AND ANGLE OF VIEW							
LOCATIONS	A	B	C	D	E	F	G H
ML.							
TESTED BY	J.W.J.	PLOTTED BY	J.W.J.	COMPUTED BY	E.M.S.	CHECKED BY	J.W.J.
APPROVED BY	William F. Hatch						
	IN CHARGE OF PHOTOMETRY						



In a great many modern industrial plants comprising large working areas, more especially those of concrete and steel construction with cement floors and also in the Food, Candy and Dairy industries, white or light colored ceilings and side walls are available for totally indirect illumination. In such instances shadowless illumination approximating daylight conditions can be obtained through the use of Silvray full

indirect equipment, actually at less expense for equipment installation and operation than direct units in small sizes. The Silvray Disc Unit especially designed for factory use, 750 Watt size, mounted on 20 foot centers (assuming ceiling heights of 9 to 12') will deliver an average working intensity of from 15 to 18 foot candles over the entire working area.

The following foot candle intensity chart can be used for the application of Industrial Units for all general purposes. The ranges of mounting heights

and spacing distances include variations covering practically all customary industrial layouts.

Mounting Height from Floor	Spacing Distance	75W	100W	150W	200W	300W	500W	750W	1000W
8'	7'	9	13	21					
	8'	7	10	17	24				
	9'	6	8	13	22				
9'	8'	7	10	17	23				
	9'	5	8	13	21	32			
	10'	4	7	11	18	27			
10'	10'	5	8	13	19	32			
	11'	4	7	11	16	27			
	12'	3	6	9	14	23			
11'	10'	5	8	11	16	27			
	11'	4	7	9	14	23			
	12'	3	6	8	12	20			
12'	10'	4	7	11	16	25			
	12'	2 $\frac{3}{4}$	5	8	12	20			
	14'	2	4	6	9	16	30		
14'	12'		5	8	12	20			
	14'		4	6	9	16	30		
	16'		3	5	7	13	27	33	
16'	16'			5	7	13	27	32	
	18'			4	5 $\frac{1}{2}$	12	24	26	
	20'			3 $\frac{1}{2}$	4 $\frac{1}{2}$	10	20	21	35
18'	20'				5	12	23	26	35
	22'				5	10	20	24	29
	24'				4	9	18	20	25
	26'					10			
	18'				4	10	18	25	33
20'	20'				3 $\frac{1}{2}$	8	16	24	28
	22'				2 $\frac{1}{2}$	7	14	17	25
	24'				2	6	12	15	21
	26'				2	5	10	14	19
	18'					7	14	19	25
25'	20'					6	11	14	21
	24'					5	10	12	18
	28'					4	8	10	15
	32'					3 $\frac{1}{2}$	6	9	12
	36'								
30'	24'					6	11	14	19
	28'					5	10	12	15
	32'					4 $\frac{1}{2}$	8	10	13
	36'					4	6	9	11
	40'						5	8	10
40'	24'							8	10
	32'							5	7
	40'							3	5

The standard Industrial Reflector is furnished in green porcelain enamel outside and white matte porcelain enamel inside with detachable Husk.

One piece units and threaded screw type husks for mounting reflectors in

recessed ceilings are obtainable at slightly additional cost.

Special outside finishes such as Ivory or White are also available at slight extra cost.

## SILVRAY COVE LIGHTING

The application of Silvray Covelites as indicated below serves to overcome the customary objections to the installation of this attractive form of illumination.

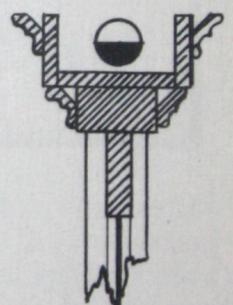
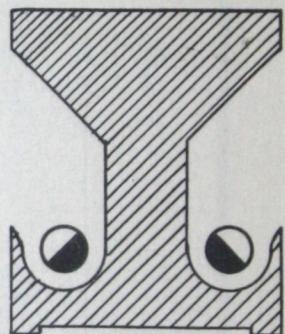
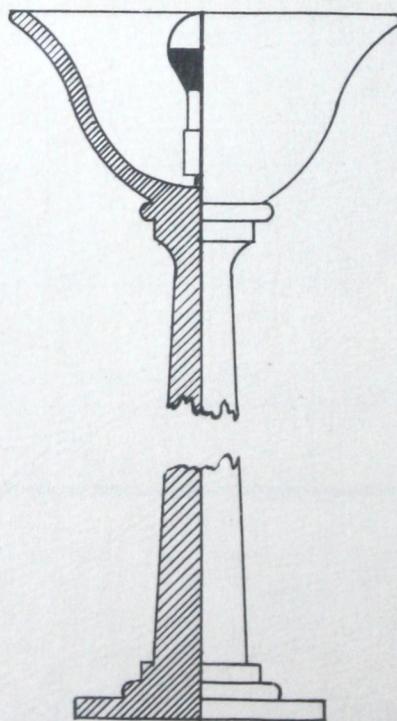
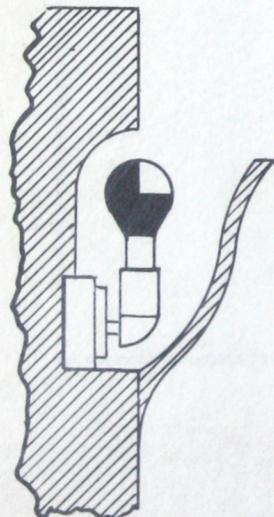
The Silvray Processed Lamp eliminates the use of auxiliary equipment with the consequent cost of maintenance. The initial cost of installation is naturally lower than that of ordinary cove lighting.

Space required for this type of cove lighting is but slightly larger than the space required for the lamp itself, permitting smaller and less conspicuous coves.

The Silvray Urnlite Process as illustrated on the extreme left indicates the control of distribution which may be provided. The lamp may be concealed from view by a sconce, a niche in the pilaster, or space may be provided in a cove.

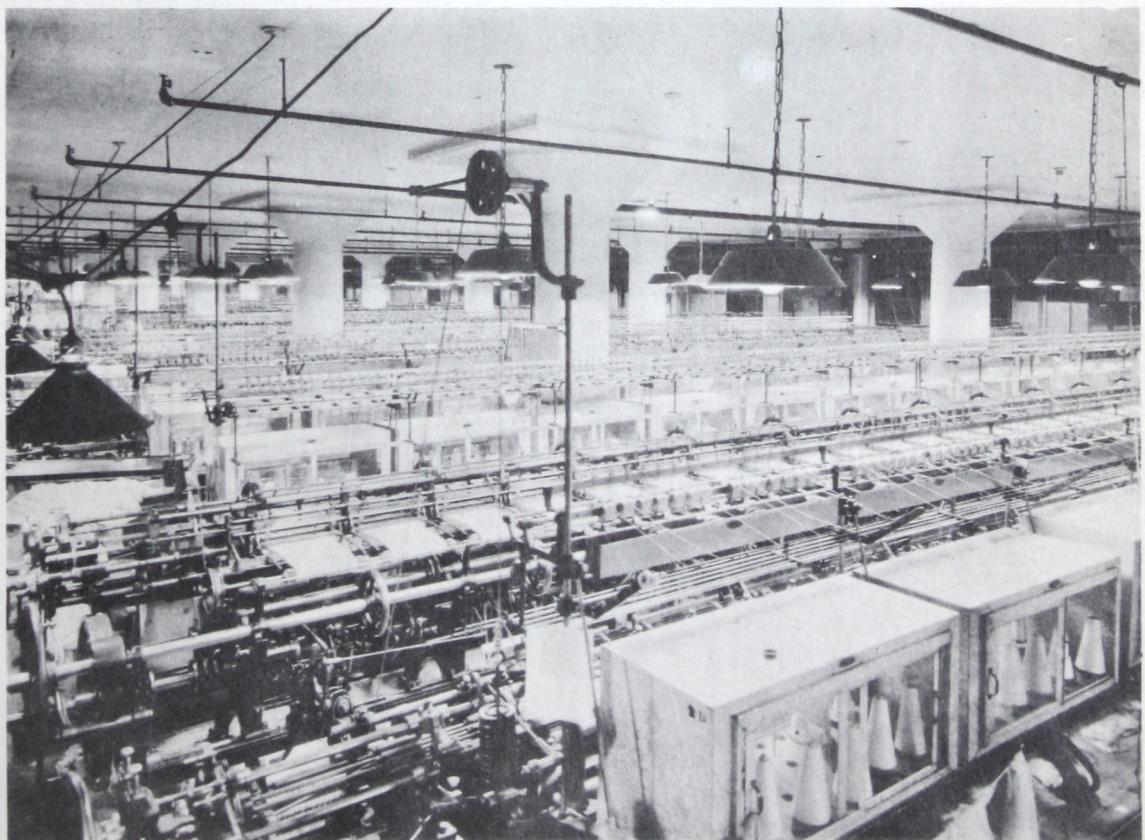
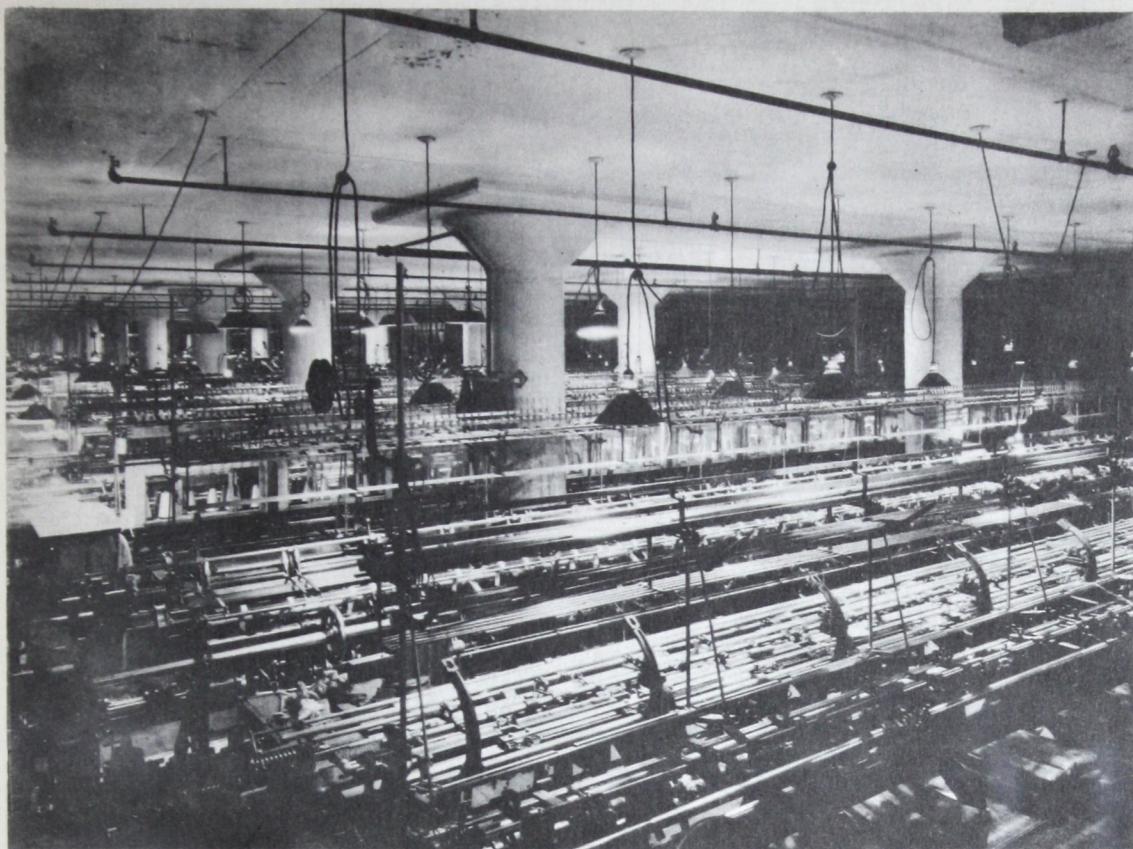
The illumination design of Silvray cove installations is almost constant. Average depreciation over the 1000 hour period is approximately 17%. Adequate intensity should be provided initially, and lamps should be replaced every 1000 hours.

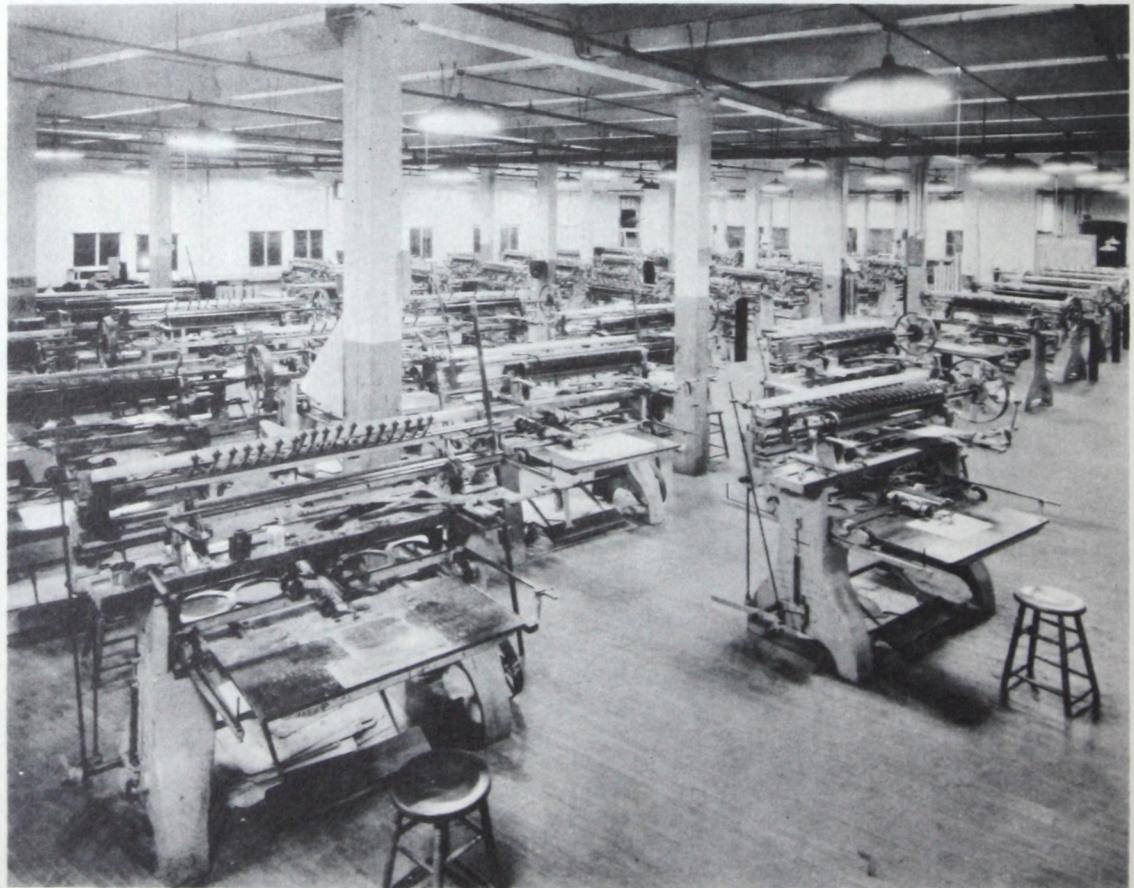
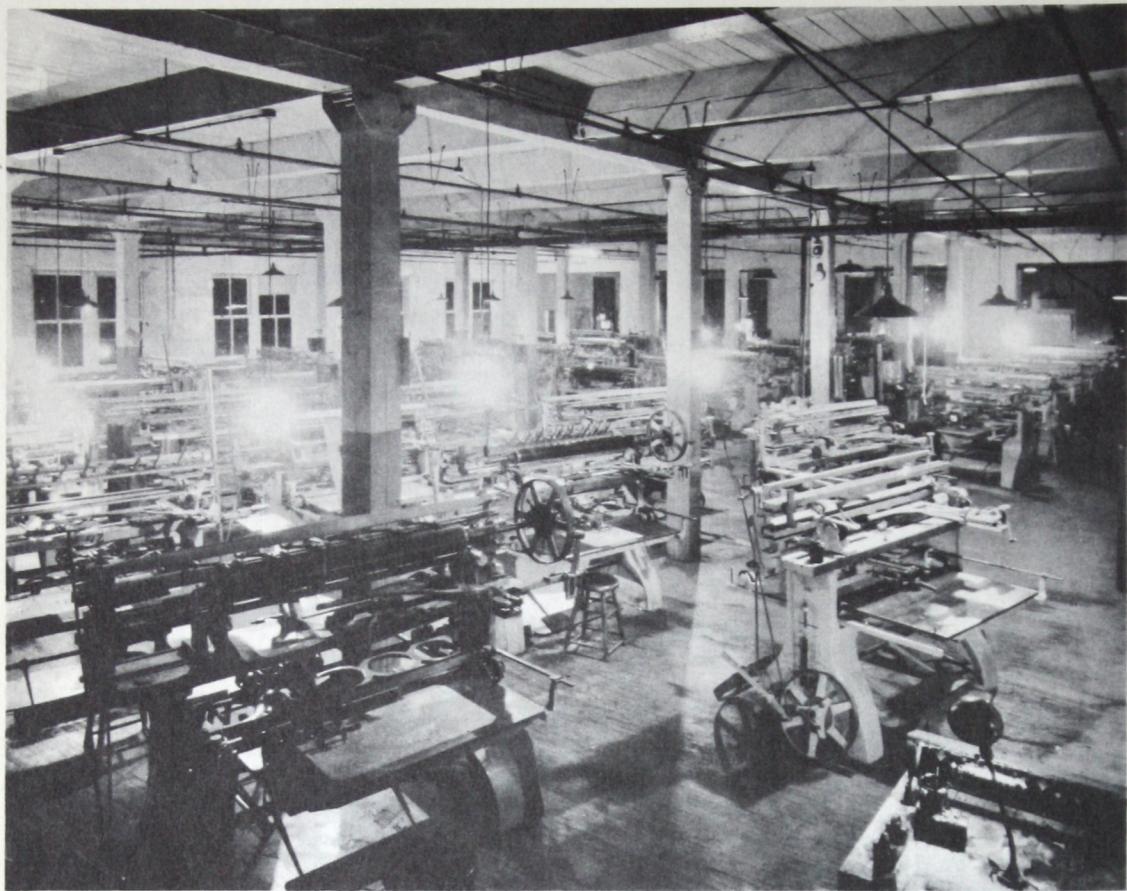
The following illustrations indicate clearly the ease of installation where Silvray Covelites are specified. Note the extremely small space required to conceal the lamp.

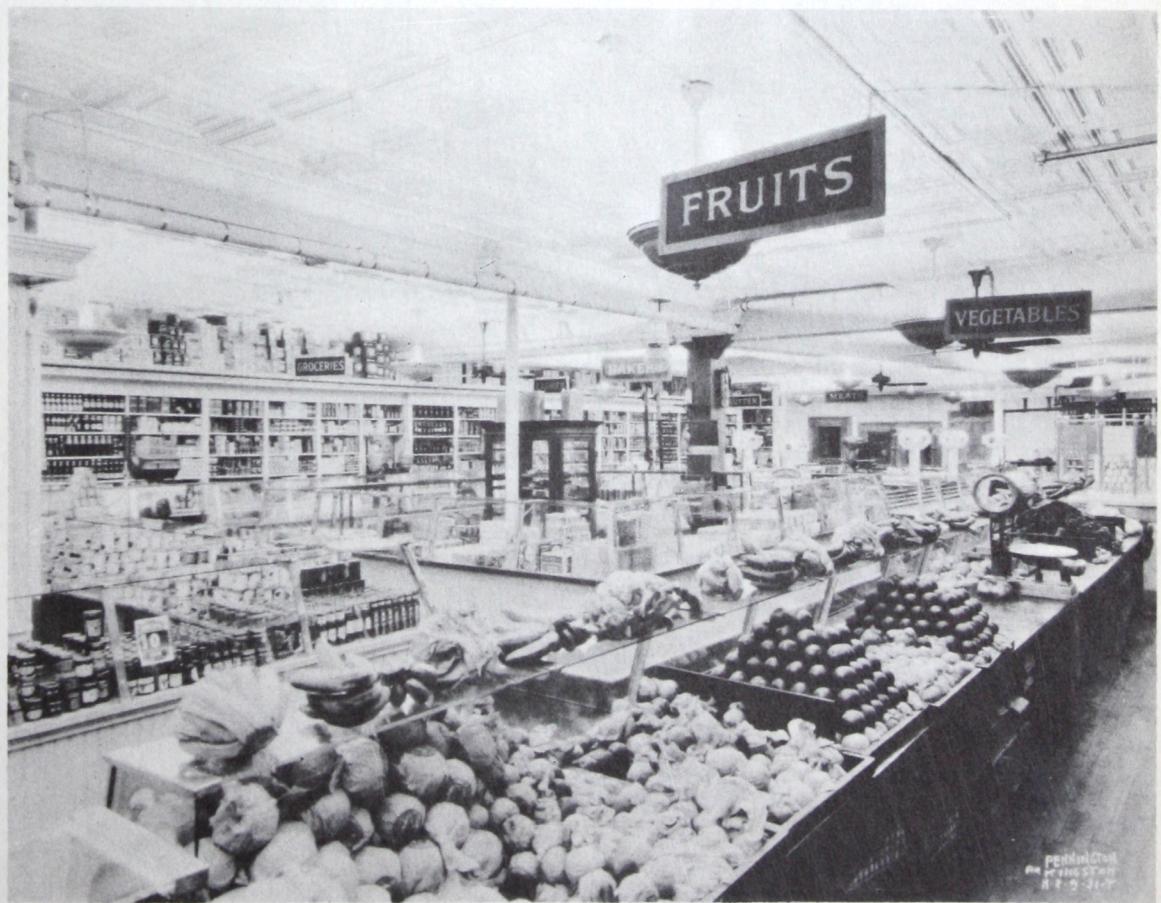


PARTITION COPING  
Sectional View

FOLLOWING ARE SOME EXAMPLES OF LIGHTING RESULTS  
BEFORE AND AFTER SILVRAY EQUIPMENT WAS INSTALLED.





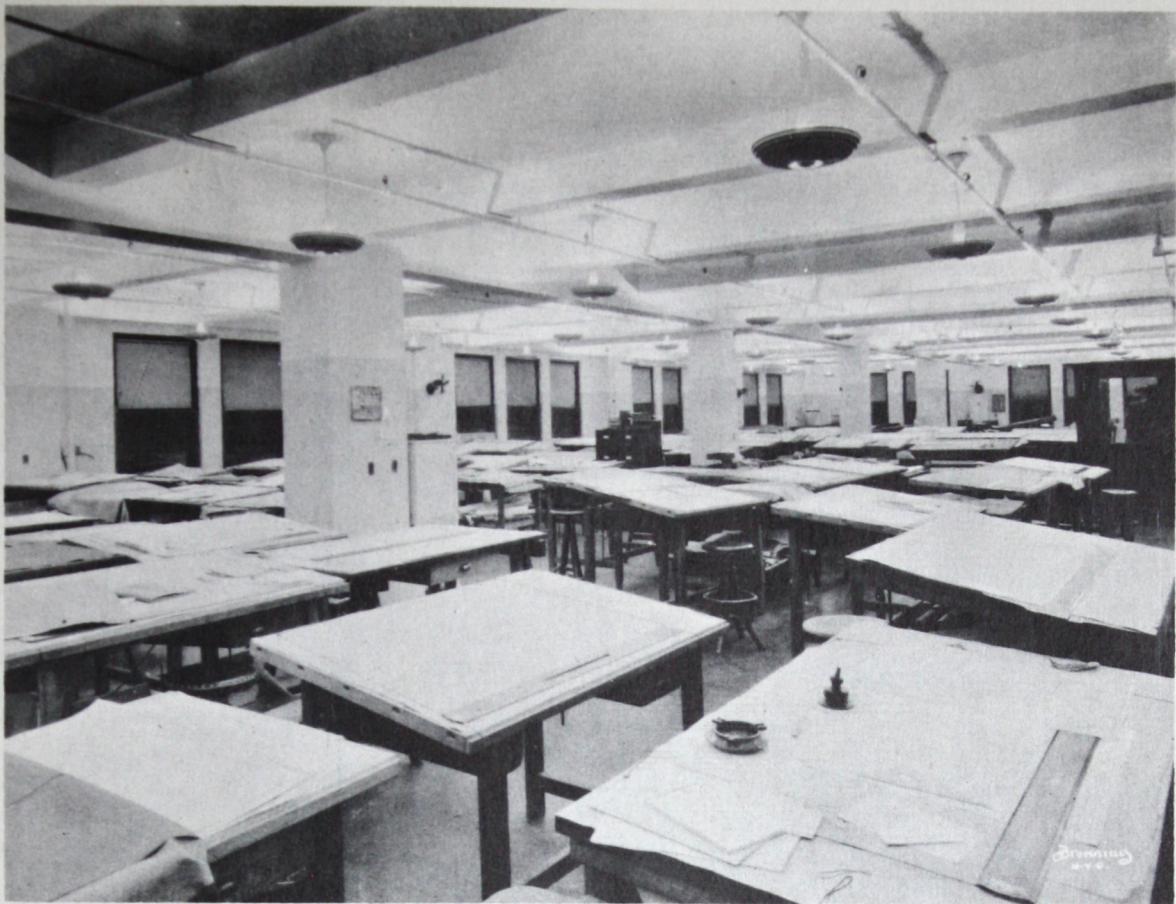




THE ILLUSTRATIONS BELOW SHOW TYPICAL INSTALLATIONS OF  
SILVRAY COMMERCIAL AND INDUSTRIAL ILLUMINATION

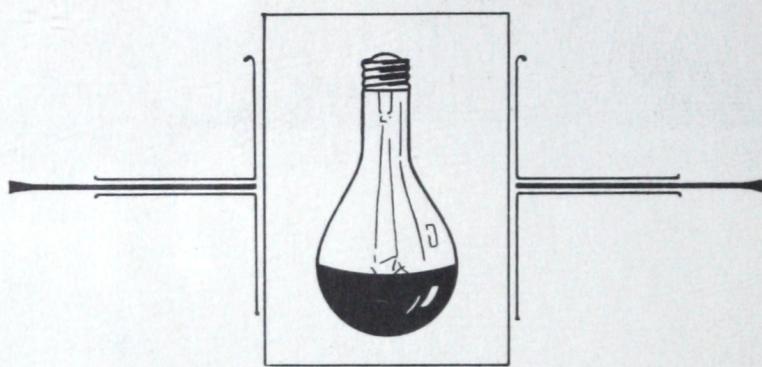






*Silvray Lighting Inc.*  
53-55-57 West 14th Street  
New York City

No. 118



LIGHTED

DARK

V-6.2  
H-3.9

CENTER  
LT. OUT  
V-10.8  
H-27.36

V-12.9  
X H-10.75

SILVRAY

AVE. IN LIGHTED  
BAY

V- 16.1  
H- 27.18

AVE IN DARK BAY

V- 7.72  
H- 5.60

V-11.3  
H-40.0

V- 9.2  
H-24.5

V-8.6  
H-6.1

V3.3  
H-1.67

V-17  
H-22

V-16.0  
H-18.4

X V-12.8  
H-10.75

V-6.2  
H-3.9

LIGHTED

DARK

CENTER LT OUT  
V-9.0 H- 23.3

V-9.7  
H-30.6

V-15.2  
H-19.4

V- 8.1  
H- 6.8

V-3.6  
H-1.94

GLASSSTEEL TYPE

AVE. IN LIGHTED BAY

V- 13.3  
H- 21.7

IN DARK BAY

V- 7.21  
H- 5.42

V-14.7  
H-19.2

V-12.2  
H-14.8

V- 5.75  
H- 3.8

V-3.2  
H-1.42

LIGHTED

DARK

CENTER LT. OUT  
V-9.25 H-22.88

V-10.3  
H-36.4

V-16.7  
H-22.0

V-8.7  
H-5.4

V3.5  
H-1.6

R.L.M. TYPE

AVE. IN LIGHTED BAY

V- 14.6  
H- 23.8

IN DARK BAY

V- 7.39  
H- 6.0

V-15.2  
H-19.0

V-15.8  
H-27.0

V-10.5  
X H-13.1

V-6.7  
H-3.9